

## **AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (Original): An apparatus for processing a digital data stream from multiple users, comprising:  
an initial amplitude estimation unit processing said data stream and producing initial amplitude estimates on a first iteration;  
a joint amplitude estimator coupled to said data stream and said initial amplitude estimator, wherein said joint amplitude estimator produces updated amplitude estimates;  
a symbol estimator coupled to said data stream, said initial amplitude estimator, and said joint amplitude estimator, wherein said symbol estimator produces a plurality of symbols estimates for each user; and  
a bank of decoders coupled to said symbol estimator, producing a plurality of symbol likelihood estimates for each user, wherein said symbol likelihood estimates are iteratively fed back to said symbol estimator and said joint amplitude estimator until a final condition is obtained.

Claim 2 (Original): The apparatus according to claim 1, wherein said final condition is selected from at least one of the group consisting of: bit error rate metric level and fixed number of iterations.

Claim 3 (Currently Amended): The apparatus according to claim 1, wherein said ~~symbol hypothesis testing module~~ symbol estimator is a member selected from at least one member of the group consisting of: Minimum Mean Squared Error (MMSE), maximum likelihood, M-algorithm, T-algorithm, and Q-algorithm, decorrelating decision-feedback detector (DDFD), improved decorrelating decision-feedback detector (IDDFD), successive interference cancellation (SIC), parallel interference cancellation (PIC) and multi-stage detector; block-iterative interference cancellation, and a deferred decorrelating decision-feedback detector.

Claim 4 (Original): The apparatus according to claim 1, further comprising an energy detector coupled to said joint amplitude estimator.

Claim 5 (Currently Amended): The apparatus according to claim 1, wherein said bank of decoders are decoders selected from at least one decoder of the group consisting of: Soft-output Viterbi, Maximum A Posteriori, and BCJR-Bahl-Cocke-Jelinek-Raviv.

Claims 6-30 (Canceled)